

AMENDMENTS

In the Claims:

2 Please amend the claims as follows:

- Sub D*
- D*
- Sub E 2*
1. (Amended) A composition comprising a first and a second nucleic acid probe, said first probe hybridizing with an ABL nucleic acid flanking sequence and said second probe hybridizing with a BCR nucleic acid flanking sequence, said flanking sequences [method of detecting a structural chromosomal aberration comprising:
 - (a) preparing a plurality of nucleic acid probes each capable of hybridizing with a separate nucleic acid flanking sequence] brought together by a chromosomal [the chromosome] aberration[;
 - (b) contacting the probes with chromatin under conditions of appropriate stringency to allow hybridization of the probes to sequences homologous with the probe sequences; and
 - (c) detecting the presence of the probes].
 2. (Amended) The composition [method of detecting a chromosomal aberration] of claim 1 wherein the probes are labeled.
 3. (Amended) The composition [method of detecting a chromosomal aberration] of claim 2 wherein each probe label is distinct from the other.

4. (Amended) The composition [method of detecting a chromosomal aberration] of claim 3 wherein the probes [are further defined as] hybridize to sequences that are at least approximately 800 kb apart in the aberrant chromosome.
5. (Amended) The composition [method of detecting a chromosomal aberration] of claim 4 wherein the labels comprise fluorescent labels.
- 5 6. (Amended) The composition [method of detecting a chromosomal aberration] of claim 4 wherein the fluorescent labels are [microscopically distinct] distinguishable under a microscope as different colors.
6. 7. (Amended) The composition [method of detecting a chromosomal aberration] of claim 6 wherein the fluorescent labels comprise digoxigenin-11-dUTP and biotin-11-dUTP.
- 6 8. (Amended) The composition [method of detecting a chromosomal aberration] of claim 1 wherein the [chromatin probe contacts occur] probes hybridize with chromosomal DNA in situ in cells.
- 7 9. (Amended) The composition [method of detecting a chromosomal aberration] of claim 8 wherein the cells comprise those in interphase of mitotic division.

8 10. (Amended) The composition [method of detecting a chromosomal aberration] of claim
9 wherein the probes after hybridization are juxtaposed [in interphase] as doublets if a
chromosomal aberration is present.

11. (Amended) The composition [method of detecting a chromosomal aberration] of
claim 10 wherein the chromosomal aberration is further defined as comprising a translocation.

12. (Amended) The composition [method of detecting a chromosomal aberration] of
claim 11 wherein the translocation is formed by breakpoints which occur on the long arms of
human chromosomes No. 9 and No. 22.

13. (Amended) The composition [method of detecting a chromosomal aberration] of
claim 12 wherein the translocation breakpoints are further defined as occurring at the locations
designated t(9;22) (q11;q34).

14. (Amended) The composition [method of detecting a chromosomal aberration] of
claim 13 wherein the translocation breakpoints are further defined to occur in the BCR and ABL
genes respectively, and a fusion gene is formed by the translocation, and said fusion gene
comprises portions of the BCR and ABL genes.

15. (Amended) The composition [method of detecting a chromosomal aberration] of claim
14 wherein the fusion gene [is] encodes a protein designated as p190.

~~16.~~ (Amended) The composition [method of detecting a chromosomal aberration] of claim 10 wherein the probes consist of those selected from probes designated PEM12, c-H-abl and MSB-1.

~~17.~~ (Amended) The composition [method of detecting a chromosomal aberration] of claim 8 wherein the cells comprise a sample[s] of human tissue[s].

~~18.~~ (Amended) The composition [method of detecting a chromosomal aberration] of claim 17 wherein the human tissue sample[s] comprises peripheral blood.

~~19.~~ (Amended) The composition [method of detecting a chromosomal aberration] of claim 19 wherein the human tissue sample[s] comprises bone marrow.

~~20.~~ (Amended) The composition [method of detecting a chromosomal aberration] of claim 8 wherein the cells comprise a sample of cultured cells.

24. (Amended) The genetic probe of claim 21 wherein the probe comprises [the designation] PEM12.

25. (Amended) The genetic probe of claim 22 wherein the probe comprises [designation] MSB-1.

Sabu E7
26. (Amended) The genetic probe of claim 23 wherein the probe comprises [designation] c-H-abl.

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27. (Amended) The composition [method of detecting a chromosomal aberration] of claim 1 wherein the first and second [plurality of] probes comprise c-H-abl and MSB-1, PEM12 and c-H-abl.

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28. (Amended) The composition [method of detecting chromosomal aberrations] of claim 1 [27] wherein the first and second probes comprise c-H-abl and PEM12 [a first pair comprises MSB-1 and c-H-abl, and a second pair comprises PEM12 and c-H-abl].

29. (Amended) A kit for the detection of chromosomal aberrations comprising at least two genetic probes selected from claims 21, 22 and 23, and [appropriate controls] a control, each in separate containers.

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Please add the following new claims:

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31. (New) The composition of claim 14 wherein the fusion gene encodes either of two proteins designated as p190 and p210.

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32. (New) The composition of claim 31 wherein the presence of said fusion gene is diagnostic for acute lymphocytic leukemia (ALL).